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P.I. Tkachenko, S.O. Bilokon, N.M. Lokhmatova, O.B. Dolenko, Yu.V. Popelo, N.M. Korotych
Ukrainian Medical Stomatological Academy, Poltava

PECULIARITIES OF ANTENATAL AND POSTNATAL PERIODS OF CHILD DEVELOPMENT WITH INFLAMMATORY MAXILLOFACILAL LOCALIZATION PROCESSES

e-mail: det_hir_stom@umsa.edu.ua

For the period of 7 years, 537 children with acute purulent odontogenic and non-odontogenic processes of maxillofacial area were examined. Acute purulent lymphadenitis (29 %) and adenoflegmon and odontogenic osteomyelitis, which accounted for 18 %, were found to be predominant in their structure. Noteworthy is the fact that a large number of children and their relatives seek specialized care behind time and are often treated for the wrong diagnosis. There are also certain age differences depending on the nosological form of the disease. Analysis of pregnancy showed that in this period, in the examined children's mothers cases of acute infectious diseases, the presence of pathological conditions were quite frequently observed, and this has reflected in childbirth. It is also noteworthy that infants who were in artificial and mixed feeding from the age of one month and six months were more likely to fall ill. This situation indicates the need to include these children to the risk group in order to timely recover, which can negate the impact of adverse factors that they have experienced in both the ante- and post-natal periods of their development.

Key words: children, developmental periods, lymphadenitis, adenophlegmon, osteomyelitis.

П.І. Ткаченко, С.О. Білоконь, Н.М. Лохматова, О.Б. Доленко, Ю.В. Попело, Н.М. Коротич

ОСОБЛИВОСТІ АНТЕНАТАЛЬНОГО І ПОСТНАТАЛЬНОГО ПЕРІОДІВ РОЗВИТКУ ДІТЕЙ З ЗАПАЛЬНИМИ ПРОЦЕСАМИ ЩЕЛЕПНО-ЛИЦЕВОЇ ЛОКАЛІЗАЦІЇ

За 7 років обстежено 537 дітей з гострими гнійними одонтогенними і неодонтогенними процесами щелепно-лицевої ділянки. Встановлено , що в їх структурі превалювали гострий гнійний лімфаденіт (29 %) та аденофлегмона і одонтогенний остеомієліт, на долю яких припадало по 18 %. Аналіз перебігу вагітності засвідчив, що в цей період у матерів обстежених дітей досить часто простежувалися випадки гострих інфекційних захворювань, наявність патологічних станів і це певною мірою відображалося на пологовій діяльності. Характерним є також те, що діти , які знаходилися на штучному та змішаному вигодуванні з місячного та шестимісячного віку частіше хворіли. Така ситуація вказує на необхідність включення цих дітей до групи ризику з метою своєчасно оздоровлення, що може звести на нівець вплив несприятливих чинників, дію яких вони відчували як в анте- так і постнатальному періодах їх розвитку.

Ключові слова: діти, періоди розвитку, лімфаденіт, аденофлегмона, остеомієліт.

The work is a fragment of the research project "Integrative-differentiated substantiation of the choice for optimal methods of surgical interventions and volume of therapeutic measures in surgical pathology of the maxillofacial area", state registration No. 0116U003821.

The source of many infectious origin diseases are often the circumstances of the child's living. Due to the pregnancy course features, the nature of childbirth in mothers and their development in the postnatal period, certain adaptive-protective mechanisms of the body are formed, which directly or indirectly affect the occurrence and course of all types of nosological disease forms, and sometimes their consequences. The same age-related anatomical and physiological features of the child as a whole, including the breast feeding period, in particular, cause easy involvement of the whole body into the process with the infection focal point generalization accompanied by metabolic, immune and endocrine disorders with the resulting consequences [2, 4, 6, 7, 8, 11].

Significant changes in the clinical course of acute odontogenic and non-odontogenic inflammatory diseases of the maxillofacial area in children necessitate the generalization of epidemiological, experimental, clinical observations and taking into account modern scientific developments regarding the effects of adverse exogenous and endogenous factors on the child's body at all phases of its development [1, 3, 4, 12].

Significant role in this aspect is also played by medico-social and socio-economic difficulties: late reference of patients to a doctor, decrease in the living standards, deterioration of living conditions and quality of nutrition, high cost of pharmacological drugs [5, 10].

The purpose of the study was to establish the specific gravity of acute inflammatory processes in the maxillofacial area of children and to study the features of ante- and postnatal periods of their development.

Materials and methods. Over 7 years (2013 – 2019), we have surveyed 537 children with acute purulent odontogenic and non-odontogenic inflammatory processes of the maxillofacial area, who were treated at the surgical department of the Children's City Clinical Hospital in Poltava, which is the basic institution of the Pediatric Surgical Dentistry Department at "UMSA". The control group consisted of 50 mothers with physiological pregnancy and childbirth and their children, who, according to their outpatient cards, were somatically healthy.

Data on pregnancy and the nature of childbirth were collected from mothers, specifying the anamnesis of life and living conditions, the presence of comorbid somatic diseases, which could to some extent affect the onset of the underlying disease in their children. Clinical examination of patients was carried out according to the conventional methodological approach adopted in surgical dentistry. When studying the history of the disease, which was usually collected from relatives, the onset of the disease was specified in detail, paying attention to its first symptoms and features of the inflammatory process course. Severity of the general condition impairment in the child, the purulent focal point localization and the intensity of pain were taken into account [9].

An important point in the child's observation was examination and palpation, which was used to assess the soft tissues condition in the inflammation area, to determine its prevalence, degree of infiltration and the response of regional lymph nodes. With odontogenic origin of the abscess, the condition of the dental arches was assessed to determine the source of infection and to plan the volume of treatment measures. Medical-statistical processing of the obtained results was carried out.

Results of the study and their discussion. The group with acute purulent lymphadenitis included 240 children aged from 1 month to 15 years, accounting for 29 % of the total number of patients with acute processes of the maxillofacial area (table 1).

Most often, inflammation of the lymph nodes was localized in the mandibular areas (85 observations – 35 %). The involvement of the lymph nodes in the parotideomasseteric area was observed in 40 cases (17 %). In 15 observations (38 %), the lymphadenitis of this localization was accompanied by an enlargement of the lymph nodes in the sub-mandibular and cervical areas. In 32 cases (13 %) the abscess was located in the submental region, and in 30 observations (12 %) – in the lateral surface of the neck. In the buccal area lymphadenitis occurred in 24 cases (10 %) and in 22 cases (10 %) the retromandibular lymph nodes were involved. In 7 children (3 %), out of 240, the purulent process occurred simultaneously in two anatomical regions.

Most frequently, lymphadenitis occurred in the spring – 82 children (35 %) and autumn – 73 children (30 %) periods. There were 60 children diseased (25 %) in the winter time period and 25 cases in the summer (10 %).

Most patients (169 – 70 %) were admitted to the clinic within 5 days after the onset of the disease. In 61 cases (25 %), children were referred for hospitalization with the wrong diagnosis. According to the data presented in the table, children of kindergarten and preschool age groups suffered most frequently. Much less frequently lymphadenitis occurred in infants and younger schoolchildren. The lowest frequency of its onset occurred in older schoolchildren.

Table 1

Distribution of patients with acute purulent lymphadenitis by age

No.	Age groups	Number of diseased Number %	
1	Infancy – from 1 month up to 1 year	27	11
2	Babyhood – from 1 up to 3 years	68	29
3	Preschool age –from 3 up to 7 years	92	38
4	Primary school age – from 7 up to 12 years	41	17
5	Senior school age – from 12 up to 15 years	12	5
Total		240	100

Analysis of pregnancy in mothers of children in this group revealed that 116 of them (48 %) suffered acute infectious diseases at this time, and pathological abnormalities during the pregnancy carrying were occurred in 201 cases (84 %), against 10 - (20 %) in the comparison group. The pathology

structure was as follows: anemia was detected in 120 women (60 %); risk of spontaneous miscarriage in 22 women (11 %), versus 4 cases (8 %) in the control group; toxicosis of the first half of pregnancy was detected in 20 – (10 %), versus 2 – (4 %); nephropathy in 19 – (9 %), versus 2 – (4 %); extragenital disorders in 12 – (6 %), against 4 – (8 %) and fetal hypoxia in 8 – (4 %), as in the control group of children.

Labor disorders were observed in 53 parturient women (22 %), in the control group – in 4 (8 %). In 26 cases (49 %) it was weak and in 13 – (25 %) it was accompanied by newborn hypoxia. 26 children (11 %) were born preterm, versus 2 – (4 %). Signs of intrauterine hypotrophy after birth were found in 49 children (20 %), and hypertrophy was found in 15 children (16 %), against 4 – (8 %) and 6 – (12 %), respectively, in the comparison group.

The total of 38 infants (16 %) received natural feeding up to 1 year, compared to 28 (56 %) ones in the control group. The total of 17 – (7 %) infants received mixed feeding from the first month, from 6 months – 21 infants (9 %), versus 4 – (8 %). The number of children receiving artificial nutrition after one month and 6 months of age was equal - 82 (34 % each), versus 6 – 12 % and 8 – 16 %, respectively. Hypo- and agalactia were more common in mothers who had complications during pregnancy and childbirth, and out of 81 women, it was found in 69 – (85 %).

Infants receiving artificial or mixed feeding at one month of age were more likely to suffer (57 children out of 99 – 57 %), and from six months this concerned 42 infants out of 103 – 41 %, versus 18 – 36 % and 14 – 28 %, respectively, in the comparison group. In infants and toddlers, lymphadenitis most commonly occurred in children receiving mixed or artificial feeding after the first month of life (22 out of 27 – 81 % and 47 out of 68 – 69 %, respectively). In other age groups, any patterns in the occurrence of the lymph nodes inflammation depending on the nature of feeding could not be established.

We monitored 150 children with adenophlegmon, which was 18 % of the total number of patients observed. Most often, adenophlegmon occurred in the submandibular regions – 58 cases (39 %) and lateral neck surface – 35 cases (23 %). In 25 observations (17 %), the purulent focal point was localized in the retromandibular region, in 18 cases in the submental region (12 %), and in 11 cases – (7 %) in parotideomasseteric and 3 cases – in the buccal region (4 %).

It occurred with the same frequency throughout all the seasons. The vast majority of patients (97-64 %) were admitted to hospital within the first 3 days from the onset of the disease. In 53 observations (36 %) this period was more than 3 days and children and their relatives sought medical care, usually after unsuccessful treatment at the place of residence. In 27 observations (18 %), the diagnosis of the healthcare facility that sent the child to the hospital did not coincide with the diagnosis established at our clinic. Adenophlegmon most often occurred in toddlers and preschool children (table 2).

Studies of the pregnancy period showed that 98 women (65 %) suffered an acute infectious disease, and its course in 127 mothers (85 %) was accompanied by manifestations of various pathological disorders, versus 10 in the control group (20 %). Anemia was reported in 47 women (37 %); the risk of spontaneous abortion was observed in 25 women – (20 %) versus 4 cases (8 %) in the comparison group; nephropathy was detected in 16 cases – (13 %), versus 2 – (4 %); toxicosis of the first half of pregnancy occurred in 15 women (12 %), against 2 – (4 %), fetal hypoxia was established in 12 observations (9 %), versus 2 – (4 %). The combination of the two disorders mentioned above was found in 9 women (7 %) and 3 disorders in 3 pregnant women (2 %).

Table 2

Distribution of patients with adenophlegmon by age

No.	Age groups	Number of diseased Number %	
1	Infancy – from 1 month up to 1 year	7	5
2	Babyhood – from 1 up to 3 years	36	24
3	Preschool age – from 3 up to 7 years	81	54
4	Primary school age – from 7 up to 12 years	21	14
5	Senior school age – from 12 up to 15 years	5	3
	Total	150	100

Labor disorders occurred in 36 women (24 %), in the comparison group this was only detected in 4 persons (8 %). Moreover, in 17 observations (47 %) this was weakness of labor and in 12 cases (33 %) labor was accompanied by hypoxia of the newborn. In 7 women (20 %), a combination of both factors was observed. There were 42 children born preterm (28 %), versus 2 – (4 %). Intrauterine fetal hypotrophy was established after birth in 52 infants (35 %), hypertrophy – in 12 ones (8 %), versus 4 – (8 %), and 6 – (12 %), respectively, in the control group.

The total of 13 infants (9 %) received natural feeding for the year, and 28 such infants (56 %) were in the group of healthy children. There were 21 infants (14 %) who received mixed feeding from one month of age, and 27 (18 %) – from 6 months versus 4 (8 %). There were 21 babies (14 %) who received artificial feeding from one month of age, versus 6 (12 %), and 68 infants – from 6 months (68 % (45 %), versus 8 (16 %). Hypo- and agalactia in the early postpartum period were observed in 69 out of 80 mothers (86 %) who had disorders during pregnancy and childbirth.

Children receiving mixed and artificial feeding from one month of age were significantly more frequently diseased (35 of 42 – 83 %) than those who received it from the age of 6 months (48 of 95 – 54 %), compared to 18 – (36 %) and 14 – (28 %) in the comparison group. It should be noted that all infants with adenophlegmon at the time of hospitalization received artificial feeding. In the toddlers' age group, consisting of 36 patients, 31 child (86 %) for some time after birth has also been on artificial and mixed feeding from 1-month age. In other age groups, the correlations between the type of feeding, its duration and the incidence of adenophlegmon could not be established.

There were 147 children with acute odontogenic osteomyelitis of the mandibular body were examined, accounting for 18 % of the total number of patients with acute inflammatory processes of the maxillofacial area who were treated in hospital. Their age distribution is shown in table 3.

Table 3

Distribution of patients with acute odontogenic osteomyelitis of the mandibular body by age

No.	Age groups	Number of diseased Number %	
1	Infancy –from 1 month up to 1 year	-	-
2	Babyhood – from 1 up to 3 years	2	1
3	Preschool age –from 3 up to 7 years	43	29
4	Primary school age – from 7 up to 12 years	66	45
5	Senior school age – from 12 up to 15 years	36	25
	Total	147	100

Most children (93-63 %) sought medical care within the first 3 days after the first clinical symptoms of the disease. The rest 54 children (37 %) were hospitalized at different times after 3 days. Almost all patients in this group (49-91 %) received medical treatment at the pre-hospital stage, but it was not always performed in full, and surgery in the form of the "causal" tooth extraction was only performed in 8 children (16 %). Moreover, in 15 cases (10 %) children were treated with other diagnoses in noncore pediatric and surgical wards. In general, the diagnosis of hospitals which referred children with osteomyelitis for hospitalization in 51 cases (35 %) did not coincide with the clinical one. Most frequently, the mandibular body inflammation occurred in children of primary school and preschool age and less frequently – in the senior school group.

Analyzing the course of pregnancy in mothers of this group of children, it was found that 87 women (59 %) suffered acute infectious diseases. Pathological disorders in pregnant women during this period were observed in 117 cases (80 %), versus 10 – (20 %) in the control group. Toxicosis of the first half of pregnancy occupied the first place (41 cases - 35 %), versus 2 – (4 %); fetal hypoxia occurred in 31 cases (27 %); nephropathy – in 27 cases (23 %) vs 2 – (4 %); extragenital disorders were in 11 cases (9 %), versus 2 – (8 %). The combination of the two disorders mentioned above occurred in 5 women (4 %) and 3 disorders were combined in 2 women (2 %).

Labor disorders were observed in 62 parturient woman (42 %), versus 2 - (8 %) in the control group. Weakness of labor activity occurred in 33 cases (53 %), neonatal hypoxia – in 29 (47 %). Prematurely born were 28 babies (19 %), versus 2 (4 %). Intrauterine hypotrophy after birth was established in 46 infants (31 %), versus 4 (8 %), and hypertrophy was detected in 12 infants (8 %), versus 6 (12 %).

21 infants (14 %) received breastfeeding for the year, compared to 28 (56 %) in the comparison group. There were 18 children (12 %) with mixed feeding from one month of age, and 54 (37 %) from 6 months, compared to 4 (8 %). Artificial feeding was received by 14 infants (10 %), 6 – (12 %) from one month, and 40 (27 %) – from 6 months of age, versus 8 (16 %). Three children (2 %) were transferred to artificial feeding immediately after discharge from the maternity hospital. Any correlations between the worsening of lactation and the course of pregnancy and childbirth in the mothers of these children could not be identified.

Children who received mixed and artificial feeding from one month of age more frequently suffered from infectious diseases (26 of 32 – 81 %), compared to 18 – (36 %). Those infants who were on mixed and artificial feeding from 6 months were diseased a little less frequently (48 of 94 – 51 %), compared to 14 – (28 %) in the control group.

Study of the correlations between the nature of feeding, its duration and the incidence of osteomyelitis in different age groups found that out of 45 toddlers and preschoolers, 32 (71 %) received mixed and artificial feeding from one month of age. In other age groups, there was an even distribution of children who received mixed and artificial feeding from different terms of life.

Unfortunately, recently the number of women whose pregnancies occur against the background of somatic pathology, and childbirth is accompanied by complications that affect the postnatal period of child development. These negative factors form in them a symptom complex which promotes emergence of pathological processes in a maxillofacial site. However, little attention has been paid to the role of these factors in periodicals, so it is not possible to have a full discussion of the content of the article.

A comprehensive analysis of the obtained statistical data revealed that the structure of acute inflammatory processes in children is dominated by acute purulent lymphadenitis (29 %), adenophlegmon and odontogenic osteomyelitis – 18 % [2, 3, 6]. During pregnancy, mothers of the examined children had acute infectious diseases (from 48 % to 65 %), pathological somatic disorders – from 60 % to 85 %, and labor impairments ranged from 22 % to 42 %, depending on the disease form [1, 2, 4, 7]. This was largely reflected in labor in the form of weakness, hypoxia neonatorum, fetal hypotrophy or hypertrophy. It is noteworthy that the vast majority of children (70 %) were hospitalized 5 days after the disease onset and with an incorrect diagnosis in 25 % of cases, which was worryingly. In addition, in comparison with the control group, children with the above purulent processes in large numbers were kept on artificial and mixed feeding. All the above negative factors contributed to forming a set of pathological symptoms with the consequences manifested directly in the maxillofacial area under the impact of an infectious factor [2, 4, 8, 11]. Unfortunately, it is impossible to perform a comprehensive comparative analysis of our works compared to the results obtained by other scientists, references to which are given in the introduction: Boguslavskaya N.Yu. (2017), Konovalova NM (2018), Udovytska NO (2016), Shipko AF (2017) due to the fact that they focus on issues concerning the presence of pathological conditions in pregnant women and women in labor [1, 4, 10]. In this regard, we recommend to include such children in the risk group to district pediatricians and dentists for timely recovery, carrying out preventive measures, which may nullify the possibility of the symptoms manifested in them in the ante- and postnatal periods, which causes prospects for further research in this field [8, 9, 11].

Conclusion

Thus, when providing specialized assistance to children with acute purulent processes of the maxillofacial area, it is necessary to take into account the pregnancy and childbirth course nature of their mothers. Disorders of the children's development conditions in the ante- and postnatal periods of their life can largely effect the formation of their physiological reactivity and type of inflammatory response. In particular, analysis of the pregnancy period in mothers revealed that at this time most of them suffered acute infectious diseases and disorders of labor activity were more frequently observed in them. Noteworthy is the fact that the vast majority of infants who were on artificial feeding were more frequently diseased (57 %), and the number of those who have received such a diet from 6 months has reached 42 %, since after childbirth the majority of women had hypolactia. We consider it expedient to recommend to pediatric local physicians and dentists to include such children into the risk group for the purpose of timely treatment, which may negate the likelihood of negative abnormalities associated with their development disorders in the ante - and postnatal periods.

Prospects for further research lie in timely establishing the role of provocative factors that can contribute to the onset of acute inflammatory processes in the maxillofacial area in children, which will permit to take precautionary measures aimed at the disease elimination or prevention in advance.

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I.R. Trutyak, N.R. Kalynovych, R.I. Trutyak, N.O. Hnateiko
Lviv Danylo Halytsky National Medical University, Lviv, Ukraine

SIGNIFICANCE OF THE STEPWISE SURGICAL APPROACH TO SEVERE HAND INJURY

e-mail: nazarkalynovych@yahoo.com

Continuous one step surgical procedures on the hand in polytraumatised patients and patients with hand multi structural injured increase risk of complications and are life-threatening. The aim of our work was to evaluate the effectiveness of the stepwise surgical approach to severe hand injury. Stepwise surgical approach according "damage control" concept was applied for 28 (1.5 %) severe hand injured civilian polytraumatised patients, for 621 (32 %) multi structural hand injured patients, for 12 (34 %) multiple military wounded patients and for 23 (66 %) military multi structural hand wounded patients. The good and satisfactory hand function we received in 78.5 % polytraumatised patients and in 94.9 % patients with multi structural hand injuries, in 4.3 % – despite the hand salvage, its function was unsatisfactory. Amputations was performed at the level of the forearm in 7 patients, 5 patients died from shock and life-threatening injuries.

Key words: hand injury, damage control, stepwise surgical approach.

І.Р. Трутяк, Н.Р. Калинович, Р.І. Трутяк, Н.О. Гнатейко

ЕТАПНЕ ХІРУРГІЧНЕ ЛІКУВАННЯ ТЯЖКОЇ ТРАВМИ КИСТІ

Тривала одноетапна хірургічна операція на кисті у пацієнтів з політравмою та з поліструктурною травмою кисті збільшує ризик ускладнень і становить небезпеку для життя травмованого. Метою нашої роботи було проведення оцінки ефективності етапного лікування пацієнтів з тяжкою травмою кисті. Етапні хірургічні втручання відповідно до концепції "damage control" застосували у 28 (1.5 %) цивільних пацієнтів з політравмою, у 621 (32 %) – з поліструктурною травмою кисті, та у 12 (34 %) військових з політравмою і у 23 (66 %) – з поліструктурною травмою кисті. Відповідно до запропонованого нами хірургічного лікування ушкодженої кисті добрі і задовільні функціональні результати отримали у 78.9 % пацієнтів з політравмою і у 94.9 % – з політруктурною травмою кисті, у 4.3 % – незважаючи на порятунок руки, його функція була незадовільною. Ампутації проводили на рівні передпліччя у 7 пацієнтів. 5 пацієнтів померли від шоку та травм, що загрожували життю.

Ключові слова: травма кисті, «damage control», етапне хірургічне лікування.

The study is a fragment of the research project "Injury and diseases of the musculoskeletal system (clinic, diagnosis, treatment and prevention)", state registration No. 0120U002146.

Hand injuries sharing of the in the upper limb trauma structure accounts for about 20-30 % [10]. According to the regional medical reports and Ukrainian social expert commissions in 2017 the number of persons who were initially recognized as disabled by hand injuries was 415 people (1,074 per 100 000 population), and the number of re-recognized disabled – was 772 persons (2 per 100 000 population). About 80 % of them are people of working age, which has a definite influence on the country's social and economic well-being [9]. Primary disability after hand injury reaches 11.1–13.0 %. The frequency of this pathology, the duration of temporary disability, the high level of long-term disability lead to huge economic losses for society [2].

The most common cause of severe hand injuries is the high-energy trauma, which is characterized by multi structural damage to the hand with soft tissues defect [5, 7].Hand anatomical structures and physiological function are complexity. Diagnostic, technical and tactical mistakes in the treatment of severe hand injured patients are conditioned of complex hand anatomical structures [13].